



Our Power

SimGas is a commercial biogas company that develops, sells and installs biogas digesters for rural households in East Africa

Why? Because biogas digesters are life-, money-, time- and climate savers

With 2,500 sales reaching 12,500 people to date, SimGas (est. 2009) is already the largest domestic biogas company in Africa

By 2030 our domestic biogas products will improve the lives of 10 million people in Africa and Asia

A photograph of a man and a woman standing in a lush banana grove. The man is wearing a white short-sleeved shirt and blue shorts. The woman is wearing a colorful floral top and a grey patterned wrap. They are standing next to a green, corrugated metal biogas digester that is partially buried in the ground. A large, dark, cylindrical object, possibly a traditional cooking pot, is in the foreground. The background is filled with tall banana trees and dense foliage.

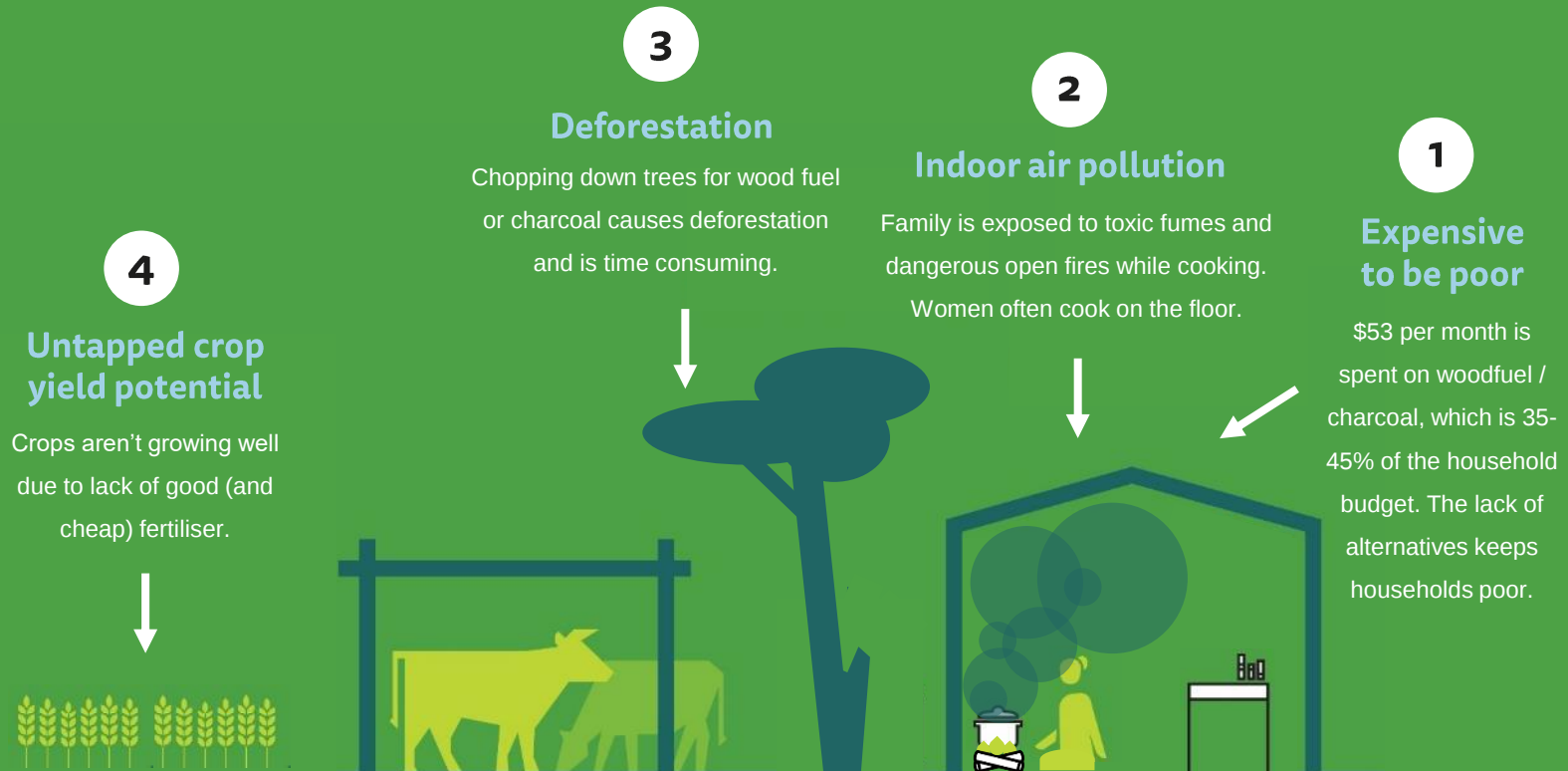
Welcome to SimGas

Every day (rural) households in Africa and Asia endanger their lives, lose money and time, by cooking on solid fuels

Pains

Alternatives are not viable: access to electricity in rural East Africa is <4-8% and solar is not a low-cost solution for cooking

Rural households in developing countries require energy mainly for cooking, lighting and charging phones, of which ~90% accounts for cooking (GIZ 2017). Solar home systems provide excellent low-cost solutions for lighting, charging phones, powering a radio or even televisions. But not for cooking, which requires ~2 kW for ~3.5 h a day. Off-grid solar home systems for >1kW costs between 2.5 USD/W and 16 USD/W (IRENA 2016), which is much more than the costs of using woodfuel and charcoal for the same.



Clear customer business case: what goes in is costless, what comes out saves \$53/m and boosts income by \$34/m

Gains

4

Organic fertiliser boosts crop yield

Crops are growing well due to organic fertiliser from the biogas digester. This provides food security and extra income (~\$34/month).

1

Money saver

Every day, manure and water goes in, biogas and fertiliser come out. No more costs for cooking fuel, saving 30-45% of household budget (~\$53/month).

3

No need to cut down trees

There is no need to cut down trees anymore. Biogas is free; no money is spent on wood or charcoal.

2

Clean cooking fuel

Family cooks on a clean fuel in an aspirational 21st century clean kitchen. There is no more smoke. And no carbon is emitted.

SimGas' biogas digester:
The GesiShamba

Monthly repayment is lower than actual fuel savings and after 24 months there are no more fuel costs

Slurry value due to increased crop yield*

+ 34 \$/m

Fuel saving**

+ 53 \$/m

Pay in instalments***

- 45 \$/m

24 m

* Potential crop yield increase of 25-400%, resulting in very conservative 34 USD/month estimate

** Wood/charcoal eq., based on survey of 745 customers

*** Price for a 6m³ system: USD 150 down payment and instalments of USD 45 x 24 months; Three different loan offers are available: pay in 5 months, 12 months or 24 months

**** Payment plan available for 5 months, 12 months, 24 months and 36 months. See appendix C for the respective graphs.

Loan offers

Size

Medium: 2 - 3 cows

Large: 3 - 4 cows

X-Large: 5 - 7 cows

Pay in 5 months

Downpayment Instalments

KSh 40,000

KSh 8,500

Pay in 12 months

Downpayment Instalments

KSh 15,000

KSh 6,500

Pay in 24 months

Downpayment Instalments

KSh 15,000

KSh 3,600

KSh 50,000

KSh 10,500

KSh 15,000

KSh 8,500

KSh 15,000

KSh 4,700

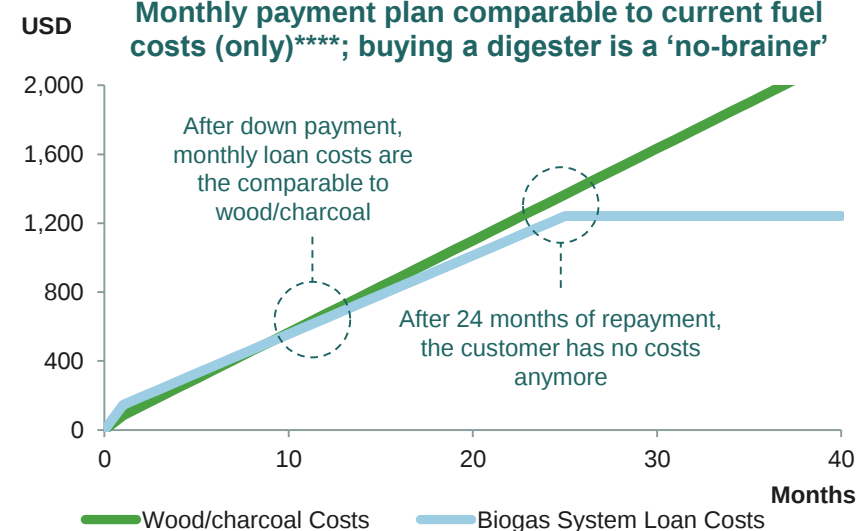
KSh 15,000

KSh 11,000

KSh 15,000

KSh 6,500

Monthly payment plan comparable to current fuel costs (only)****; buying a digester is a 'no-brainer'



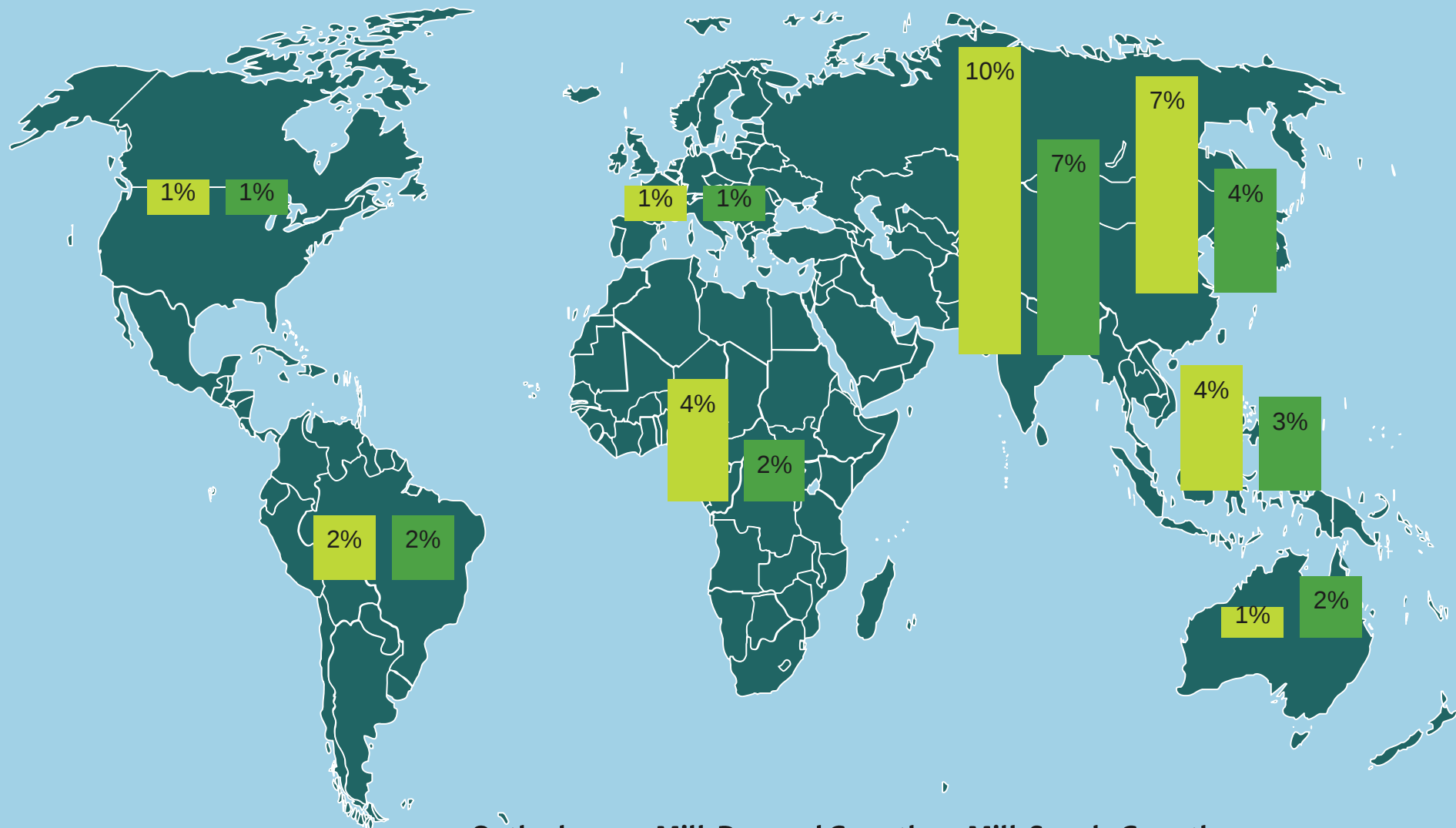
This is Ann: 25 years old, owns 3 cows, and 3 months ago, she switched from cooking on woodfuel to biogas only



We are pleased to inform and update
you on our latest innovation



Why the Biogas Milk Chiller?



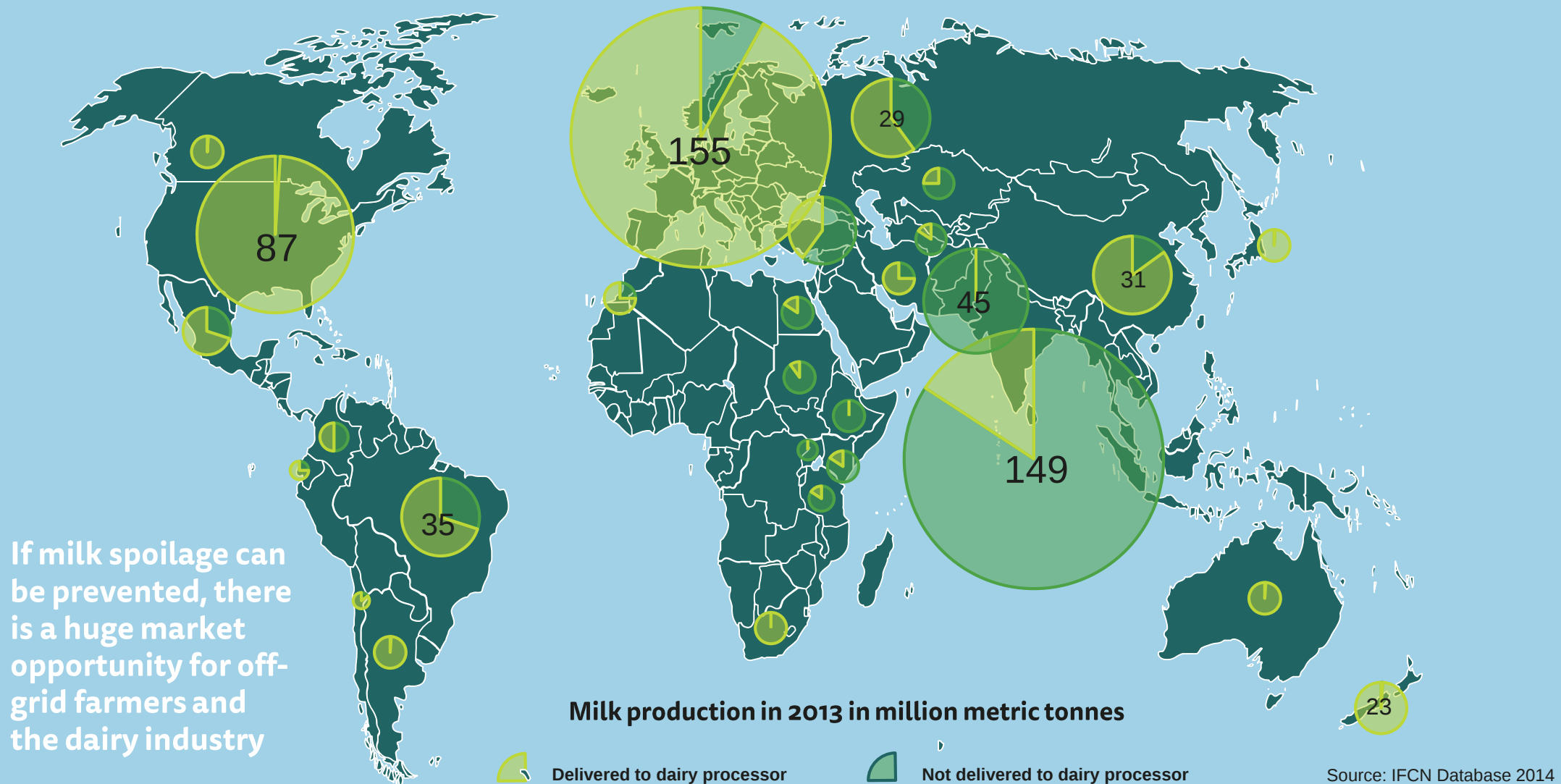
Outlook 2020: Milk Demand Growth vs. Milk Supply Growth

Why the Biogas Milk Chiller?

✦ But right now, only a fraction of milk makes it to market, often because off-grid farmers cannot keep it cold overnight.



Why the Biogas Milk Chiller?



Why the Biogas Milk Chiller?



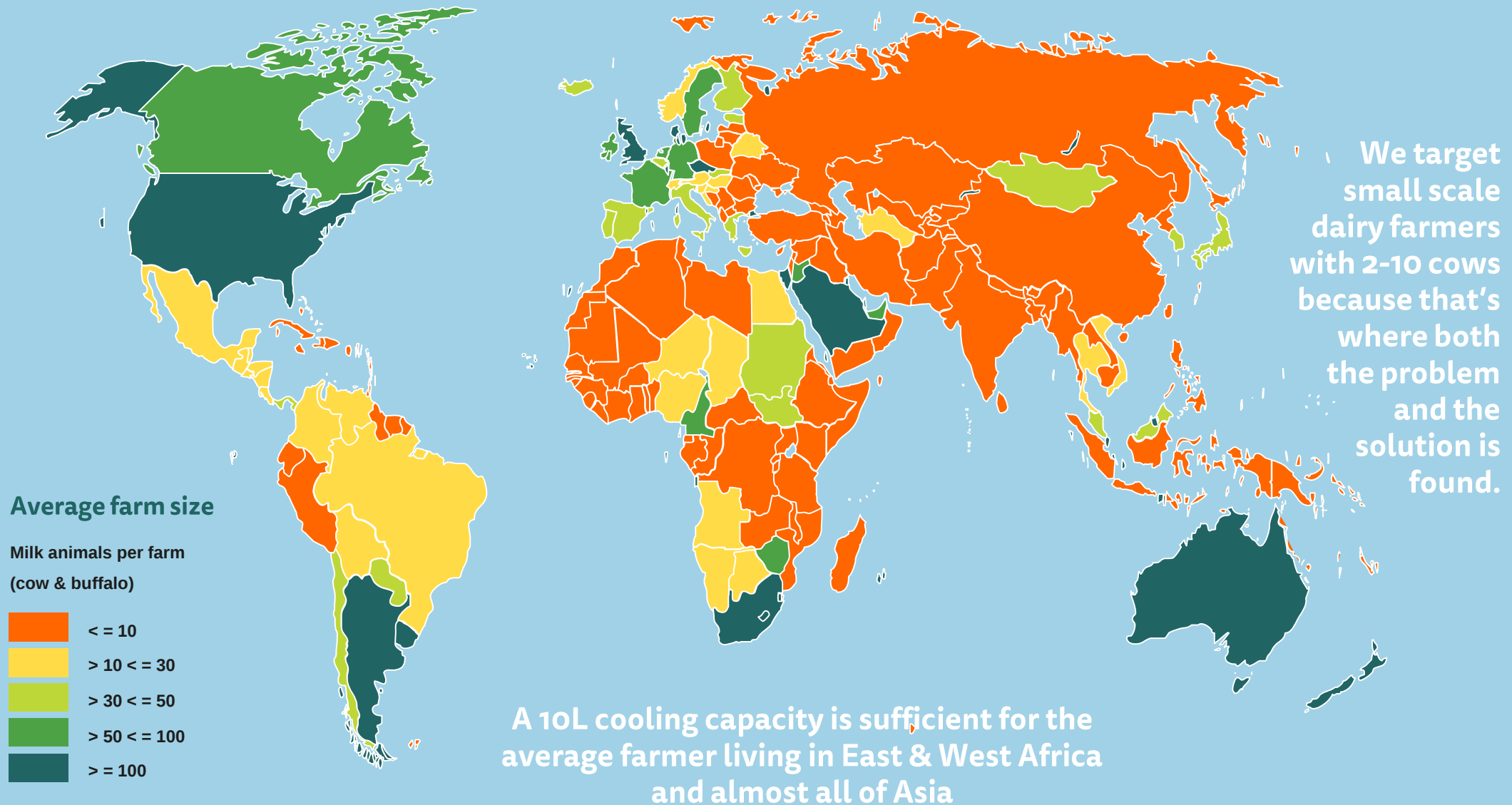
Our Power

It's time to unlock the
promise of night milk.



DAIRY

Why the Biogas Milk Chiller?

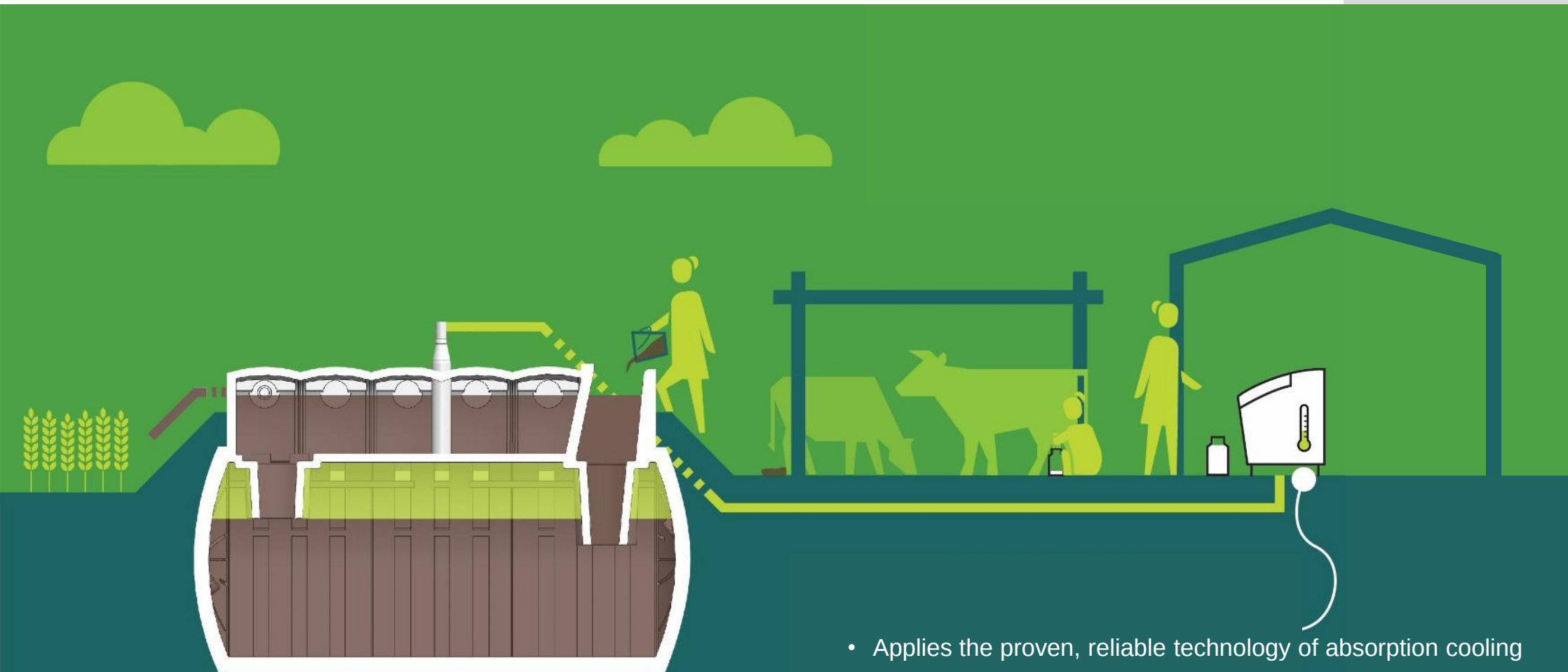


Why the Biogas Milk Chiller?

Our milk chiller allows dairy farmers to cool, store and sell more milk, increasing supply across the chain.



How does it work?



- 100% Powered by biogas
- Runs on any type of domestic anaerobic digester

- Applies the proven, reliable technology of absorption cooling
- Tailored cooling capacity of 10 Litres milk of night milk
- Cools milk within 4 hours from 35°C to 7°C
- Low gas consumption leaves enough gas to cook

How does it work?



ICE COMPARTMENT

Ice is stored in the aluminum compartment. This ice is used for cooling the milk. More ice means colder milk.



MILK COOLING COMPARTMENT

When you place the milk-can in the water, the ice melts and the milk is cooled.



BIOGAS FLAME

When this flame is ON, ice is made in the ice compartment. The longer the flame is on, the more ice is created.

EXTRA COOLING COMPARTMENT

You can keep other products cool in this compartment like vegetables.



What is the status of the project and what is next?



Latest model, field test in Kenya

- ✓ 3x version 1 prototypes tested in the lab (2014); proof of working principle
- ✓ Market assessed in Kenya, Tanzania, Zambia, Rwanda by SNV (2015+2016); proof of market potential
- ✓ 4x version 2 prototypes tested in Tanzania (2015) ; proof of concept in the field
- ✓ 14x version 3 prototypes tested in Kenya and Tanzania (2016); value proposition assessed for farmer as well as cooperative, together with IDEO.org
- ✓ 3x version 4 prototypes tested in Kenya, ongoing (2017); optimised efficiency, usability and lower costprice

Next step: Pilot with 200 milk chillers in Kenya to proof impact at scale, on the whole dairy value chain (2018)

What do we want to achieve?



Our dream is that by 2025,
milk spoilage by off-grid
dairy farmers is
something of the past;

The Biogas Milk Chiller shall be a widely accepted
link in the cold chain for emerging dairy sectors
worldwide